Presented To
I CORPS ARTILLERY
FIRE SUPPORT CONFERENCE
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AGENDA

NLOS - Cannon

Excalibur

LW155

Paladin

MACS

MOFA

PIAFS

Status

NLOS Cannon
NLOS-C

Requirements

- The FCS FoS must be Joint interoperable
- FCS network must enable Battle Command and provide situational awareness
- Networked lethal and non-lethal effects
- Transportable worldwide by air, sea, highway, and rail
- Achieve significant logistics footprint reduction
- Embedded individual and collective training
- Provide essential protection to mounted and dismounted soldiers

Characteristics

- Fires 30 - 40 km
- Fires 6 - 10 rounds per min
- Responds to fire mission when moving in 20 -30 sec
- Responds to fire mission in 15 - 20 sec when emplaced
- Carries 24 - 48 rounds
- Rearms with crew under armor in 5-12 min

Milestones:

MS B	**1Qtr 05**
OTE	**2Qtr 08**
LRIP	**1Qtr 08**
FUE	**4Qtr 12**

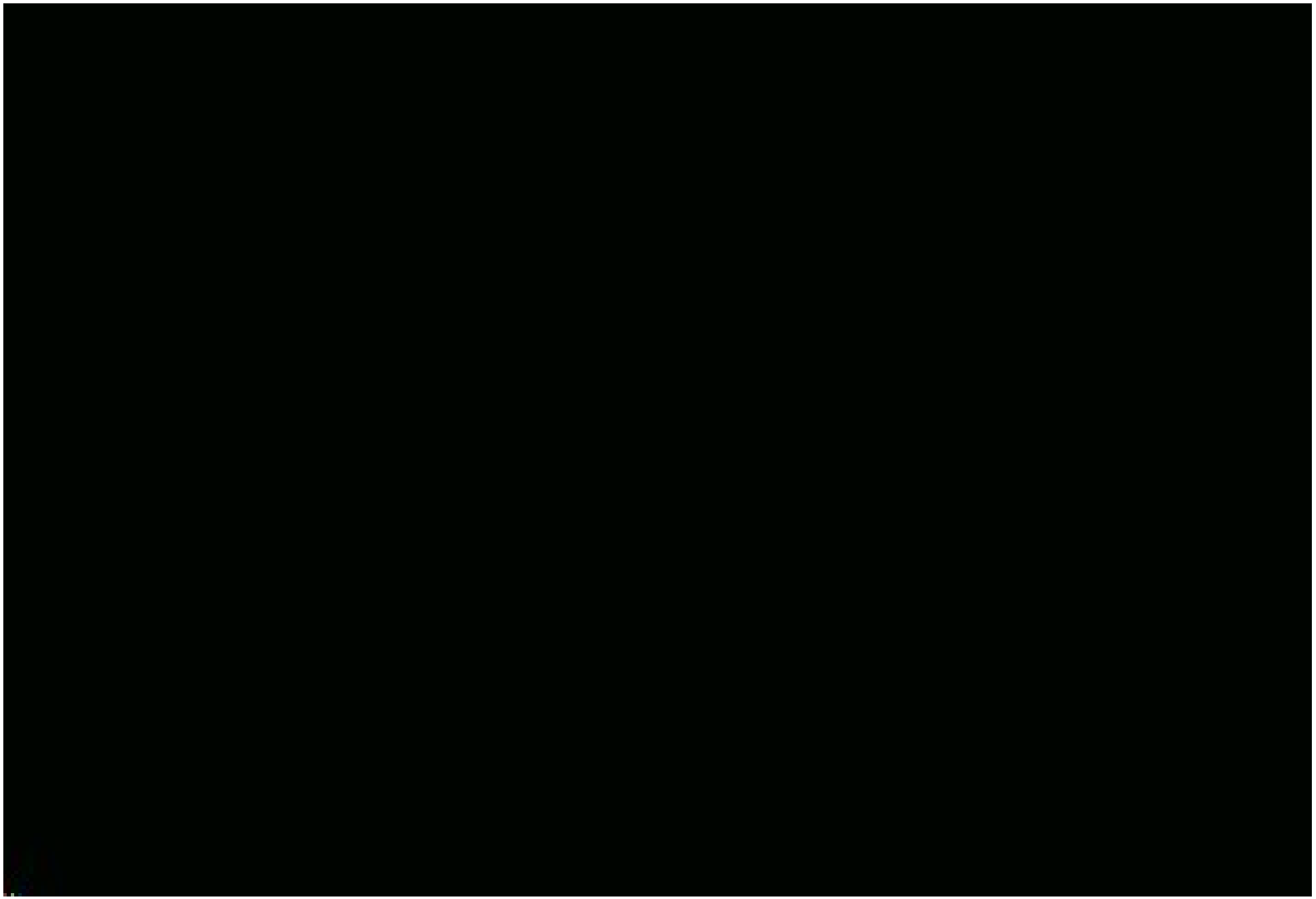
Funding
RDTE: Funded
Proc: Funded for 15 UA Brigades

Quantity
AAO = xxxx
APO = yyyy

Issues

- **A 3-7 ton difference between a design that meets requirements and C-130 deployability. Conducting trade analyses.**

Mobility Video



Statement D, DoD & DoD Contractors, SFAE-GCSS-CR, Picatinny Arsenal, New Jersey 07806-5000

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Excalibur XM982U

Status

Requirements

- 10m CEP regarless of range
- Effectiveness equal to or greater than the M107 HE
- Reliability 85%
- Max range 35 - 40km

Characteristics

- Precision guided, extended range 155mm featuring three fuzing options [PD, Delay, HOB] fired from NLOS and JLW 155 Cannons
- Unitary (HE) warhead (BLK 1)
- Fin stabilized airframe
- GPS, IMU added
- Penetrates, detonate, 4 - 8” reinforced concrete (structures)
- Reduces collateral damage

Milestones:

MS C 06	**2Qtr**
LRIP 06	**3Qtr**
IOTE 08	**1Qtr**
FUE	**N/A**

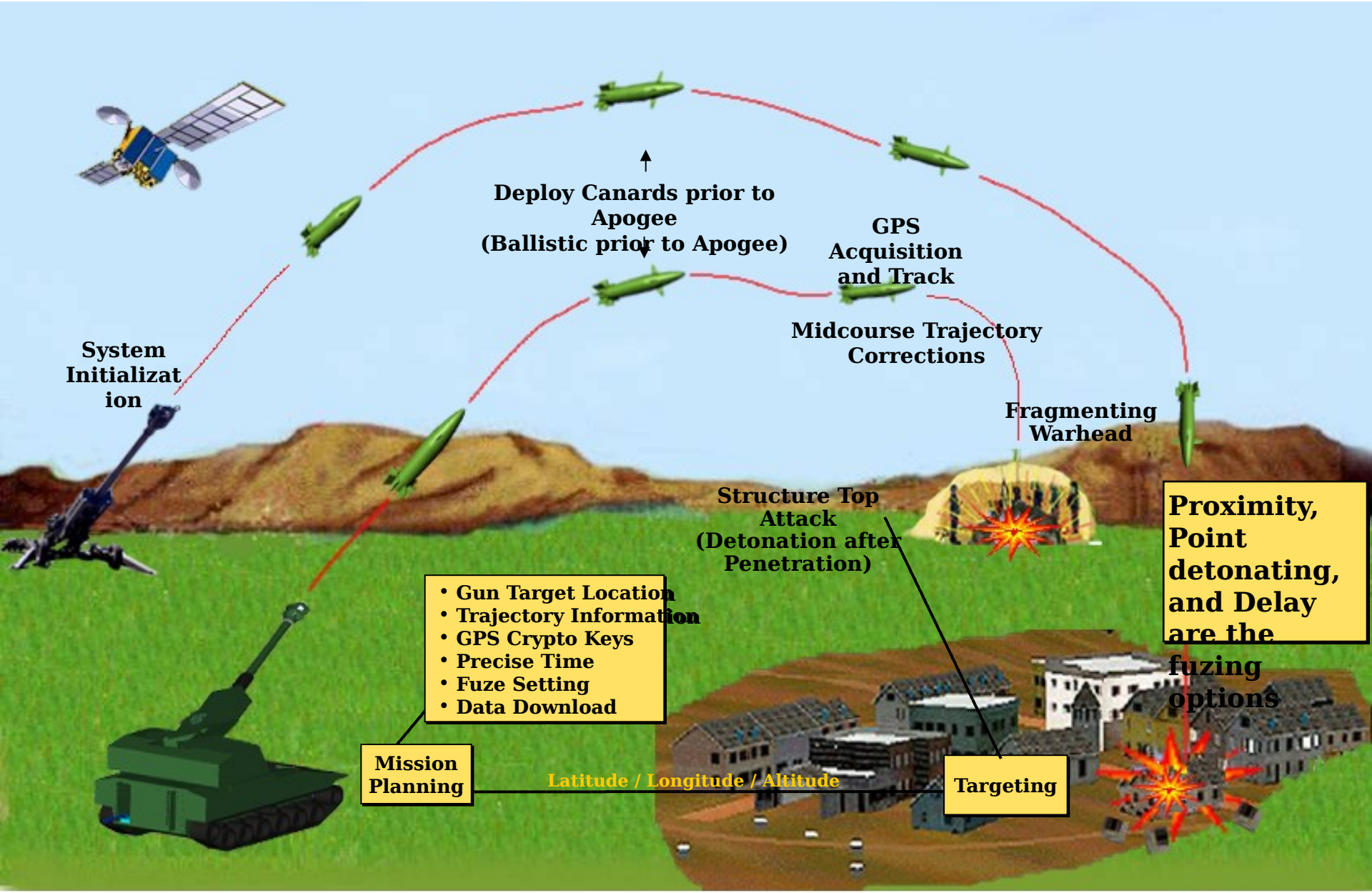
Funding:
RDTE: Funded
Proc: BLK 1 only

Quantity
AAO = 61,483
APO = TBD

Issues

- **UFR for Paladin Integration**
- **AAO considered “too high”**

CONCEPT


Deploy Canards prior to Apogee
(Ballistic prior to Apogee)
GPS Acquisition and Track
Midcourse Trajectory Corrections
System Initialization
Fragmenting Warhead
Structure Top Attack (Detonation after Penetration)
Proximity, Point detonating, and Delay are the fuzing options
• Gun Target Location
• Trajectory Information
• GPS Crypto Keys
• Precise Time
• Fuze Setting
• Data Download
Mission Planning
Latitude / Longitude / Altitude
Targeting

Status

M777 / M777E1 LW 155

Requirements

- Emplace ≤ 3 minute
- Displace ≤ 2-3 minu
- Weight <10,000 pou
- Block 3 Reliability 80 900

Mean Rnd B/w Syste Abort

Characteristics

- Joint USMC / Army program
- International support
- Low trunnions
- Titanium / cast Titanium parts
- Hydro-pneumatic suspension
- Integrated digitization (M777E1)
- Self-location & Orientation
- On-board radio
- On-board power supply

Milestones:

IOTE	**4Qtr 04**
FRP	**2Qtr 05**
FUE	**4Qtr 06 (M777E1)**

Quantity
AAO = 368
APO = 233

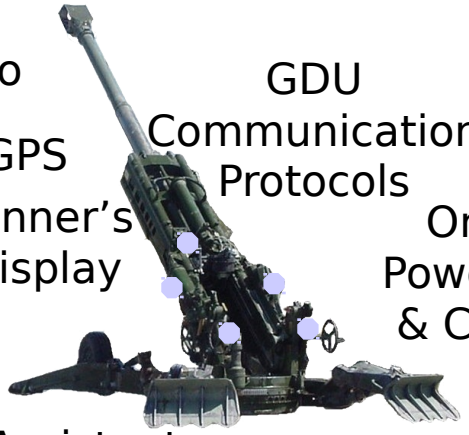
Issues

- **SBCT: 3X6 vs 3X4**
- **TAA-11 expected to reduce AAO/APO**
- **Army NETT**

LW155 Development Plan

M777

Towed Artillery Digitization Block 1 (M777E1)



Radio

GDU

Communication Protocols

GPS

Gunner's Display

On-Board Power Supply & Computer

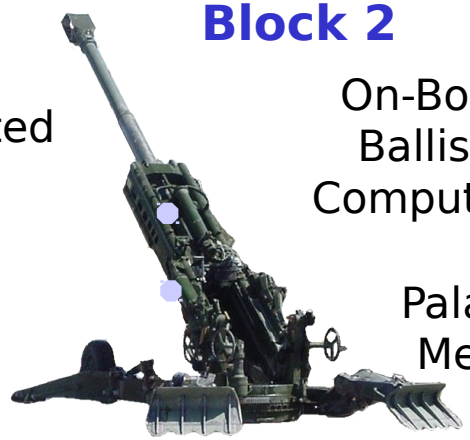
Chief of Section Display

Navigation System

Assistant Gunner's Display

VMS

Towed Artillery Digitization Block 2

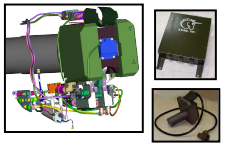


Integrated MVS

On-Board Ballistic Computation

Paladin VMF Messaging

P3I Options



Laser Ignition

EL / DF Drives

Rammer

Ammo Handling

Paladin Enhancements

Funded Enhancements

- **Paladin Digital Fire Control System**
- **MACS storage racks to include FAASV**
- **Halon fire extinguisher replacement**
- **Engine drive replacement**

Complete the Fleet by FY 10

Unfunded Enhancements

- **Laser ignition**
- **Projectile tracking system (PTS)**
- **Blue Force Tracker for all FAASV**

Paladin Digital Fire Control System (PDFCS)

Status

Requirements

- Upgrade path for current and future SIPs, FBCB2, DAGR, Excalibur, JTRS, Driver's Display, Graphical User Interface
- Improve MVS with a 98 - 99% reliability
- Improve reliability

Characteristics

- Upgrade to high speed fire control processor
- Enhanced Integrated diagnostics
- Single data bus allows common upgrade path (Joint Technical Architecture)
- New servo design eliminates failures
- Includes Color Display Unit
- Improved COTS design for higher reliability and lower Life Cycle costs
- Simplified logistics (warranty/obsolescence) provided by the manufacturer

Milestones:
FUE Jun 04

Quantity
AAO = 1050
APO = 1050

Issues

- **No Issues**

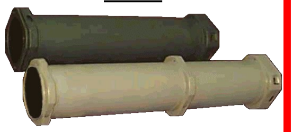
Status Modular Charge Artillery System MACS

Requirements

- Compatible with future automated and existing 155mm Weapons Systems
- 4km min range, 40km max range
- M231 and M232 easily identifiable/distinguishable
- 20 year storage life

M231

M232



Packaging

Characteristics

- MACS consists of two propelling charges, the M231 and the M232.
- M231 fired singularly (Charge 1) or in pairs (Charge 2) to engage targets from 3 to 12 kilometers.
- M232 fired in groups of 3 or more increments from Charge 3 (three M232s) to Charge 5 (five M232s) to engage targets from 7 to 30 kilometers.

Issues

- The MACS replaces the four current types of bag charges.
- **M3/M4 Bag propellant zero balance FY05 M231/M232 WARREQ TBD**

Milestones:

- **M231 Materiel Released 16 Apr 03**
- **M232 Materiel Release 2QFY04___**

Quantity

AAO = 13,604,943

APO = TBD

Fielding Plan

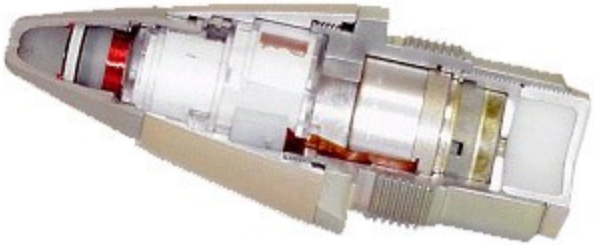
M231 can be requisitioned for training (10% of annual training

Status

Multi Option Fuze Artillery MOFA

Requirements

- Compatible with 105mm, and 155mm weapons systems
- Four operational modes
- Inductively set
- Can withstand launch to achieve 50kms
- Reliability: 95% in proximity mode, 97% in all other modes
- 20 year storage life



Characteristics

- Compatible with all current 155mm & 105mm High Explosive (HE) projectiles
- Provides four fuze functions: precision time, proximity (VT), point detonating and delay
- Compatible with automated NLOS Cannon.

Quantity
APO = 750k

Milestones:

- **Materiel Release 2QFY04**

Fielding Plan

- **Fielded to War Reserve until required for training**
- **Existing stockpile to be used in training until depleted**

Status

PIAFS

Requirements

- Capable of setting all U.S. Army inductively settable fuzes
- Must meet design Requirements for Inductive Setting of Electronic Projectile Fuzes, per NATO STANAG 4369
- Retain information for 5 to 6min, during battery changes, or power loss
- Set the fuze in 10 to 15 sec.

Characteristics

- Uses Standard Batteries
- Lighted Display (LCD)
- Confirms Fuze ID and Settings (Talk-Back)
- Manually Set or Input from Fire-Control
- Ability to Set Fuzes Faster and more Reliably
- Easy to Use (Soldier Friendly)
- Compatible with All US & NATO Fuzes

Milestones:
Materiel Release 4QFY03

Quantity
APO = 2,500

Fielding

- **1 per howitzer section**
- **1 per firing platoon (spare)**
- **4 per Regional Training Center**

QUESTIONS?

USAFAS Fuze Strategy

OBSOLETE	CURRENT	FUTURE
M578	M582	
M564	M767	
	Time Bursting	MOFA
M513A2	M728	
M514A1	M732/A	M782
	Proximity	
M520A1	M577A	
M724		
M501		M762/A
M548	*M563	
M565	M762/A	
	Time Cargo	
M508A1	*M557	M739A
M572	M739A	
	Point Detonating	
	M78	MOUT
	Concrete Piercing	MK399 MOD1

Represents obsolete fuzes

* Represents unique fuzes

(M557 issued for 4.2 mortar use only)

PALADIN V11.4 AFCS UPGRADE

- Upgrade will be accomplished at the Unit Organizational Level, and must be complete before using the M782 Multiple-Option Fuze (MOFA).
- V11.4 corrects the following problems:
  - Safety of Use Message TACOM control # SOUM-04-001, “safe time in tube status”.
  - Premature rejection of fire mission when specifying Generic “Q” in FFE when PD or PDF was specified in the ADJ phase.
  - reflects the legal shell/fuze combination M795 with MK399 and corrects the standard MV for the M549A1 with the M232/3H charge.
  - processing of a two Gun Priority CPH fire mission.
- Paladin PC-Trainer software has also been upgraded.

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